

Seven newly recorded species and families of spiders from Reunion Island (Malagasy region) (Araneae, Araneomorphae)

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Abstract. – To date, 24 spider families have been identified on Reunion Island. But published data on spider fauna mainly concerned natural habitats and highlands. Studies of predatory arthropods in agroecosystems provided the opportunity to conduct a thorough investigation of spider diversity. Seven species and families of spiders are newly recorded for Reunion Island: *Creugas gulosus* Thorell, 1878 (Corinnidae), *Oedignatha scrobiculata* Thorell, 1881 (Liocranidae), *Ero aphana* (Walckenaer, 1802) (Mimetidae), *Palicanus caudatus* Thorell, 1897 (Miturgidae), *Oecobius marathaus* Tikader, 1962 (Oecobiidae) and *Orthobula impressa* Simon, 1897 (Phrurolithidae) and *Tropizodium peregrinum* Jocqué & Churchill, 2005 (Zodariidae).

Résumé. – Sept espèces et familles d'Araignées nouvelles pour la Réunion (Araneae, Araneomorphae). Jusqu'à aujourd'hui, 24 familles d'Araignées avaient été recensées à l'île de la Réunion. Ces données publiées sur l'arachnofaune ont principalement concerné les habitats naturels et d'altitude. Des inventaires des arthropodes prédateurs dans les agroécosystèmes ont permis de compléter les connaissances sur la diversité des Araignées. Ainsi, sept espèces et familles d'Araignées nouvelles pour la Réunion ont été recensées : *Creugas gulosus* Thorell, 1878 (Corinnidae), *Oedignatha scrobiculata* Thorell, 1881 (Liocranidae), *Ero aphana* (Walckenaer, 1802) (Mimetidae), *Palicanus caudatus* Thorell, 1897 (Miturgidae), *Oecobius marathaus* Tikader, 1962 (Oecobiidae) and *Orthobula impressa* Simon, 1897 (Phrurolithidae) et *Tropizodium peregrinum* Jocqué & Churchill, 2005 (Zodariidae).

Keywords. – Faunistics, Mascarene Islands, new records, agroecosystems.

Reunion is a volcanic island located in the south western Indian Ocean. As most major islands in the region, Reunion was colonized mainly by animals and plants from Madagascar; some lineages with high dispersal abilities came from biogeographical regions of the southern hemisphere (AGNARSSON & KUNTNER, 2012). The first, and important, study of spider fauna on Reunion Island was conducted by VINSON (1863), who identified species belonging to 17 families. It was not until the end of the XXth century that four families were newly recorded: Trochanteridae (SCHMIDT & JOCQUÉ, 1983), Sicariidae and Hahniidae (LOPEZ, 1990) and Nesticidae (LEDoux & HALLÉ, 1995). During the 2000s, three families were recorded: Linyphiidae [first record by QUILICI *et al.* (2003)], Ctenidae (LEDoux, 2004) and Oonopidae [first record by PLATNICK *et al.* (2011)].

Up to this day, there are 24 spider families known on Reunion Island. Previous studies focussed on natural habitats and most were conducted in the Reunion highlands. A study of predatory arthropods in horticultural agroecosystems aimed at developing an insecticides free cropping system gave us the opportunity to undertake a thorough investigation of spider diversity.

MATERIAL AND METHODS

Samples were collected on the west coast of Reunion Island mainly in mango orchards, as part of the BIOPHYTO project (www.biophyto.org). Photographs were taken by Brice Dérépas with a Nikon AZ100 Multizoom and a DS-Fi2 5-megapixel camera using focus stacking techniques with NIS-Elements software. Photographs of the vulva were taken after dissection and a few minutes in 5.2 % sodium hypochlorite solution (NaClO) to ensure digestion of unsclerotized

tissue. Voucher specimens have been deposited in two permanent arthropod collections. Voucher codes beginning by BDER correspond to samples identified by Brice Derepas and Maxime Jacquot and deposited in the collection of UMR PVBMT (Saint-Pierre, Reunion, France). Voucher codes beginning by MRAC correspond to samples identified by Arnaud Henrard and deposited in the collection of the Musée Royal de l'Afrique Centrale (Tervuren, Belgium). Voucher codes marked with an asterisk (*) indicated photographed specimens.

RESULTS

We found seven new spider families and species that have previously not been known to occur on Reunion Island. We detail collection data and provide photographs of these species.

Family **Corinnidae** Karsch, 1880

Genus ***Creugas*** Thorell, 1878

Creugas gulosus Thorell, 1878 (fig. 1)

Creugas gulosus Thorell, 1878: 175; SAARISTO, 2002: 6, fig. 11-15; SAARISTO, 2010: 58, fig. 6.1-5; RAVEN, 2015: fig. 9a-d (female), 10a-d (male).

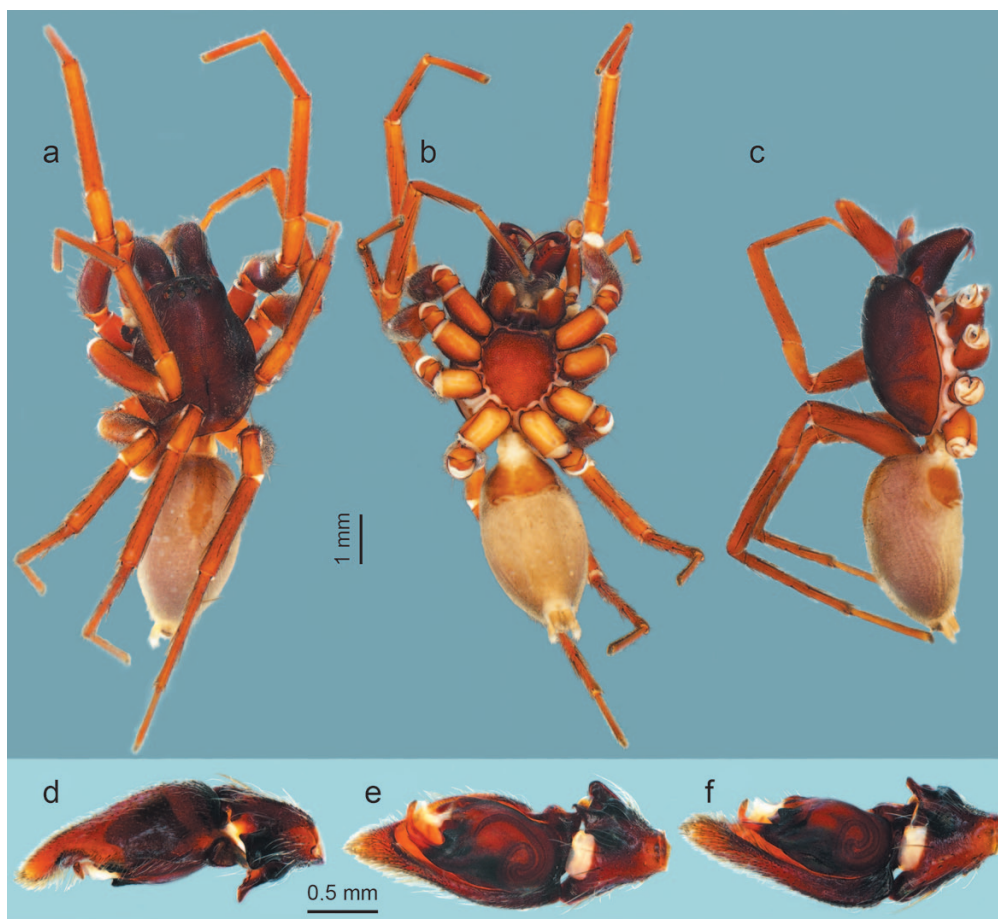


Fig. 1. – *Creugas gulosus* Thorell, ♂. – a, Dorsal view. – b, Ventral view. – c, Lateral view. – d, Palp, retrolateral view. – e, Palp, ventral view. – f, Palp, prolateral view.

Material examined. – Reunion Island. 1 ♂, Étang-Salé (alt. 110 m, 29.VIII.2012 (BDER00372_0101*), M. Jacquot *et al. leg.* (pitfall traps).

Distribution. – Pantropical, recorded in Seychelles and newly recorded from Reunion Island.

Family **Liocranidae** Simon, 1897

Genus ***Oedignatha*** Thorell, 1881

Oedignatha scrobiculata Thorell, 1881 (fig. 2)

Oedignatha scrobiculata Thorell, 1881: 209; DEELEMEN-REINHOLD, 2001: 267, fig. 348-356; SAARISTO, 2002: 9, fig. 18, 20; SAARISTO, 2010: 61, fig. 6.8, 6.10.

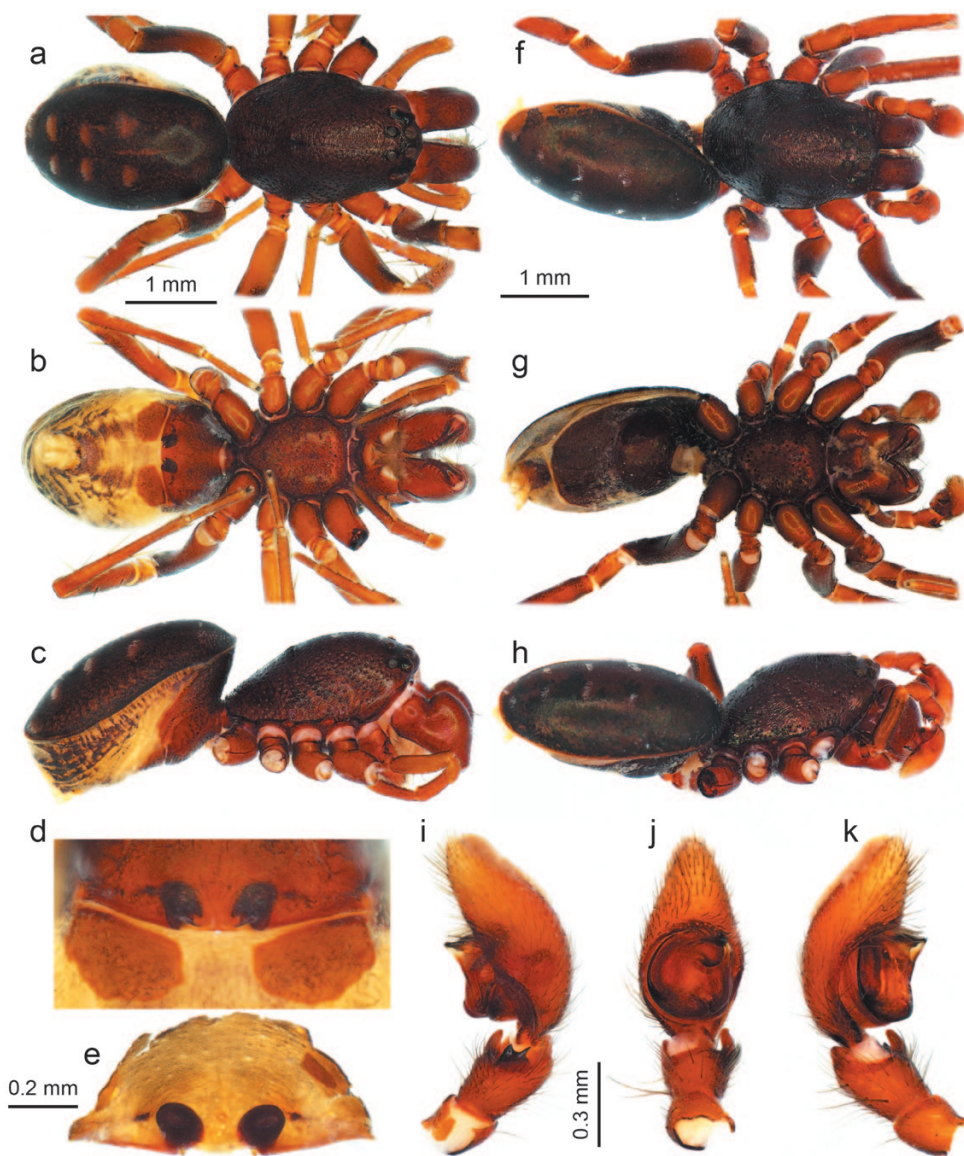


Fig. 2. – *Oedignatha scrobiculata* Thorell. – a-e, ♀: a, dorsal view; b, ventral view; c, lateral view; d, epigyne; e, vulva. – f-k, ♂: f, dorsal view; g, ventral view; h, lateral view; i, palp, retrolateral view; j, palp, ventral view; k, palp, prolateral view.

Material examined. – Reunion Island. 6 ♀, Saint-Leu, chemin des Bois-de-Lait (alt. 270 m), 25.VIII.2009, 4.III.2010, 18.VII.2011, 1.VI.2012 (BDER00379_0101, BDER00380_0101, BDER00381_0101, BDER00382_0101, BDER00383_0101, BDER00384_0101*), *Atiama-Nurbel et al. leg.* (dung-baited pitfall traps); 4 ♂, 1 ♀, Saint-Gilles, route du Théâtre (alt. 70 m), 9.III.2012, 29.III.2012, 29.VIII.2012 (BDER00376_0101*, BDER00377_0101, BDER00378_0101), *M. Jacquot et al. leg.* (pitfall traps).

Distribution. – Reunion Island (new record), Seychelles, India (Malabar Coast, coasts of Odisha and Tamil Nadu, West Bengal), Sri Lanka, Thailand, Malaysia, Indonesia, Taiwan, Philippines.

Family **Mimetidae** Simon, 1881

Genus **Ero** C. L. Koch, 1836

Ero apha (Walckenaer, 1802) (fig. 3)

Aranea apha Walckenaer, 1802: 206.

Ero apha (Walckenaer): SIMON, 1881: 33; HARMS & HARVEY, 2009: 268, fig. 26.A-E, 28.I.

Material examined. – Reunion Island. 1 ♂, Saint-Pierre, Mont-Vert-les-Bas (alt. 360 m), 27.VIII.2013 (BDER00373_01*), *M. Jacquot et al. leg.* (suction sampling on herbaceous layer).

Distribution. – Europe to Northwest China, Reunion Island (new record), Southeast Asia, Australasia, St. Helena.



Fig. 3. – *Ero apha* (Walckenaer), ♂. – a, Dorsal view. – b, Ventral view. – c, Lateral view. – d, Palp, retrolateral view. – e, Palp, ventral view. – f, Palp, prolateral view.

Family **Miturgidae** Simon, 1886Genus **Palicanus** Thorell, 1897***Palicanus caudatus*** Thorell, 1897 (fig. 4)

Palicanus caudatus Thorell, 1897: 227; DEELEMEN-REINHOLD, 2001: 220, fig. 266-271; SAARISTO, 2002: 16, fig. 41-46; SAARISTO, 2010: 90, fig. 16.1-5.

Material examined. – Reunion Island. 4 ♂, 1 ♀, Saint-Gilles, route du Théâtre (alt. 70 m), 7.III.2012, 21.VIII.2013 (BDER00406_0101, BDER00407_0101*, BDER00408_0101, BDER00431_0101); 1 ♂, 1 ♀, Saint-Gilles (alt. 90-110 m), 7.III.2012, 14.III.2012 (BDER00404_0101*, BDER00405_0101); all *Jacquot et al. leg.* (pitfall traps).

Distribution. – Reunion Island (new record), Seychelles, Lombok (island of south Indonesia), Hainan (island of south China) and Myanmar.

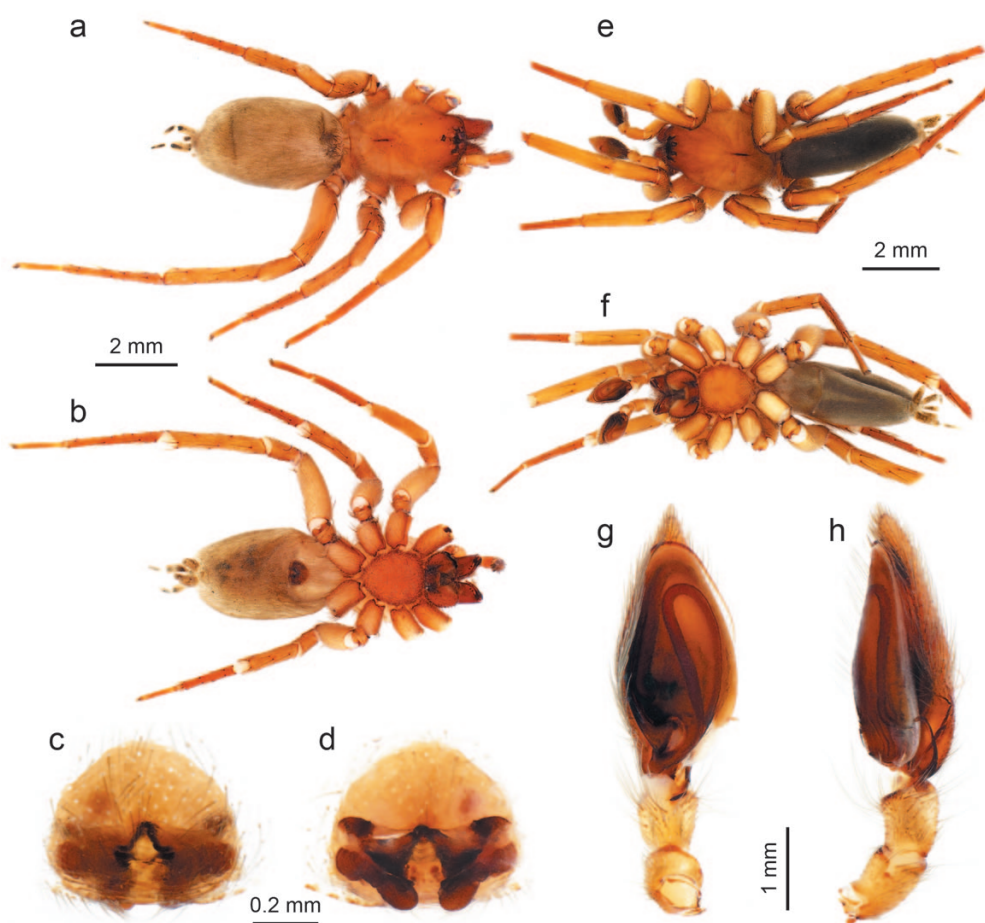


Fig. 4. – *Palicanus caudatus* Thorell. – a-d, ♀: a, dorsal view; b, ventral view; c, epigyne; d, vulva. – e-h, ♂: e, dorsal view; f, ventral view; g, palp, ventral view; h, palp, retrolateral view.

Family **Oecobiidae** Blackwall, 1862Genus **Oecobius** Blackwall, 1862***Oecobius marathaus*** Tikader, 1962 (fig. 5)*Oecobius marathaus* Tikader, 1962: 684, fig. 2a-b.*Oecobius reefi* Saaristo, 1978: 104, figs. 46-51.*Maitreja marathaus* (Tikader): SAARISTO, 1997: 71, fig. 1-4; SAARISTO, 2010: 106, fig. 21.1-6.

Material examined. – Reunion Island. 4 ♂, Saint-Gilles, cap de la Houssaye (alt. 80 m), 19.VIII.2014 (BDER00374_01*), *Jacquot et al. leg.* (pitfall trap); 1 ♂, 4 ♀, Saint-Pierre, chemin de l'Irat (alt. 160 m), 29.IV.2015, 9.IX.2015 (BDER00434_0101, BDER00375_0101*), *B. Derepas leg.* (night collecting).

Distribution. – Pantropical, recorded in Seychelles and newly recorded from Reunion Island.

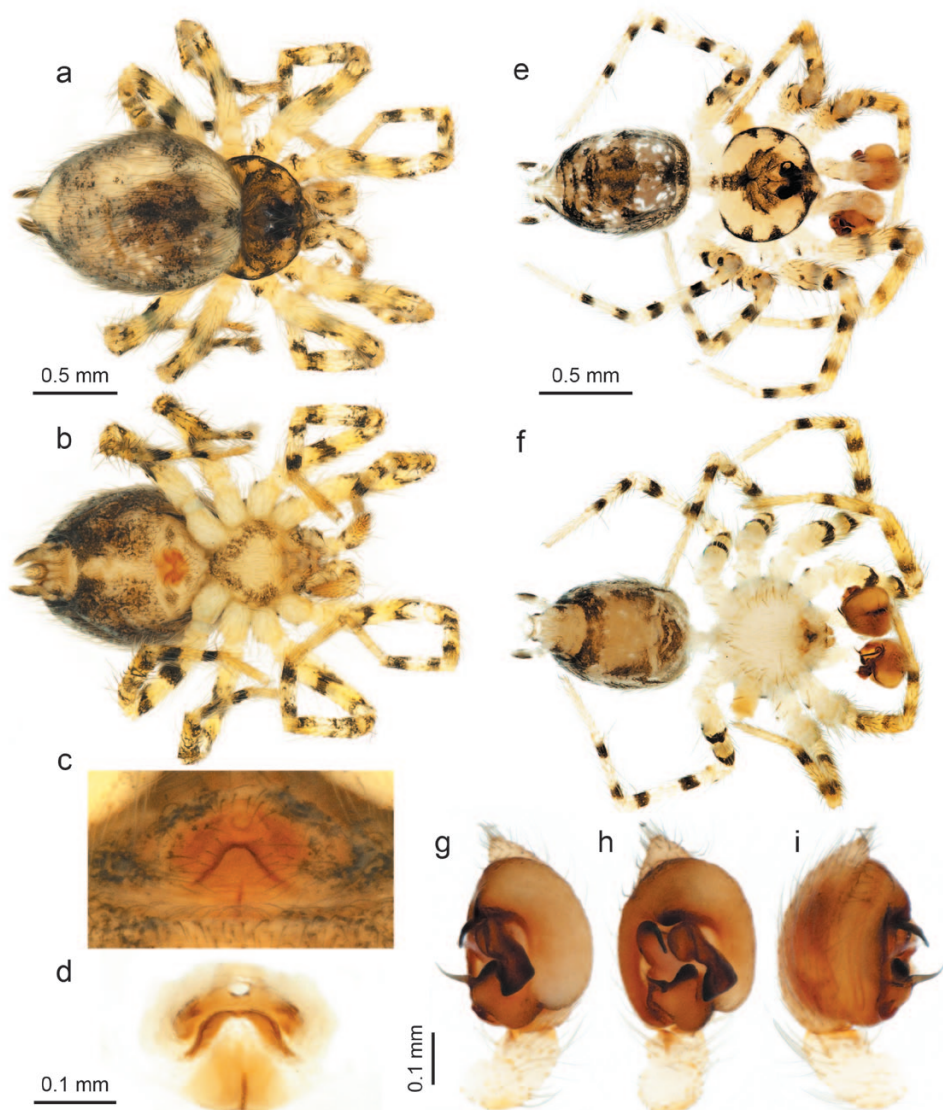


Fig. 5. – *Oecobius marathaus* Tikader. – a-d, ♀: a, dorsal view; b, ventral view; c, epigyne; d, vulva. – e-i, ♂: e, dorsal view; f, ventral view; g, palp, retrolateral view; h, palp, ventral view; i, palp, prolateral view.

Family **Phrurolithidae** Banks, 1892Genus **Orthobula** Simon, 1897**Orthobula impressa** Simon, 1897 (fig. 6)

Orthobula impressa Simon, 1897: 498; SAARISTO, 2002: 14, fig. 33-38; SAARISTO, 2010: 61, fig. 6.11-16.

Material examined. – Reunion Island. 1 ♀, Plaine des Cafres, chapelle Notre-Dame-de-la-Paix (alt. 1635 m), 5.XII.2014 (BDER00390_0101*), *B. Derepas* leg.; 1 ♂, 2 ♀, Étang-Salé (alt. 110 m), VIII.2014, (BDER00385_0101, BDER00386_0101, BDER00387_0101), *M. Jacquot et al.* leg. (suction sampling and pitfall trap); 4 ♂, 4 ♀, Saint-Gilles (alt. 70-110 m), VIII.2014 (BDER00391_01, BDER00392_0101, BDER00393_0101, BDER00394_0101, BDER00395_0101, BDER00396_0101, BDER00397_01), *Jacquot et al.* leg. (suction sampling and pitfall trap); 1 ♂, 2 ♀, Saint-Paul, Piton-Défaut (alt. 110 m), VIII.2014 (BDER00398_0101*, BDER00399_0101, BDER00400_0101, BDER00401_01), *Jacquot et al.* leg. (suction sampling and pitfall traps); 1 ♂, 1 ♀, Saint-Pierre, Pierrefond (alt. 60 m), VIII.2014 (BDER00402_0101, BDER00403_01), *Jacquot et al.*; 2 ♀, Saint-Pierre, Mont-Vert-les-Bas (alt. 360 m), VIII.2014 (BDER00388_0101, BDER00389_0101), *Jacquot et al.* leg. (pitfall traps).

Distribution. – Reunion Island (new record), Seychelles, Maharashtra (India), Sri Lanka and West Sumatra.

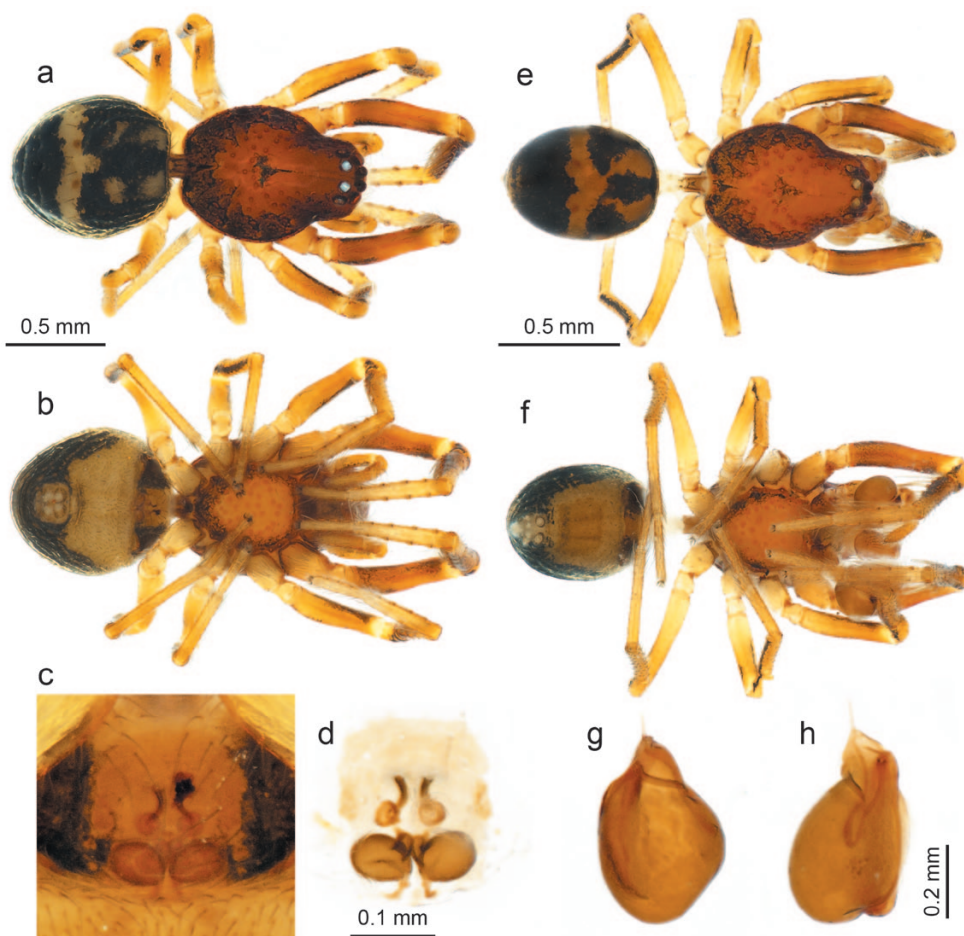


Fig. 6. – *Orthobula impressa* Simon. – a-d, ♀: a, dorsal view; b, ventral view; c, epigyne; d, vulva. – e-h, ♂: e, dorsal view; f, ventral view; g, bulb, ventral view; h, bulb, retrolateral view.

Family **Zodariidae** Thorell, 1881Genus ***Tropizodium*** Jocqué & Churchill, 2005***Tropizodium peregrinum*** Jocqué & Churchill, 2005 (fig. 7)*Tropizodium peregrinum* Jocqué & Churchill, 2005: 4, figs. 1-13.

Material examined. – Reunion Island. 25 ♂, 17 ♀, Saint-Gilles (alt. 70-110 m), VIII.2014 (BDER00409_01, BDER00410_01, BDER00411_01, BDER00412_01, BDER00413_01, BDER00414_0101, BDER00415_01, BDER00416_0101, BDER00417_01, BDER00418_01, BDER00419_0101, BDER00420_01, BDER00421_0101, BDER00422_0101, BDER00423_01, BDER00424_01, BDER00425_01, BDER00426_01, BDER00427_01), *Jacquot et al. leg.* (pitfall traps); 4 ♂, 5 ♀, *idem*, 21.VIII.2013 (MRAC_243319, MRAC_243320,

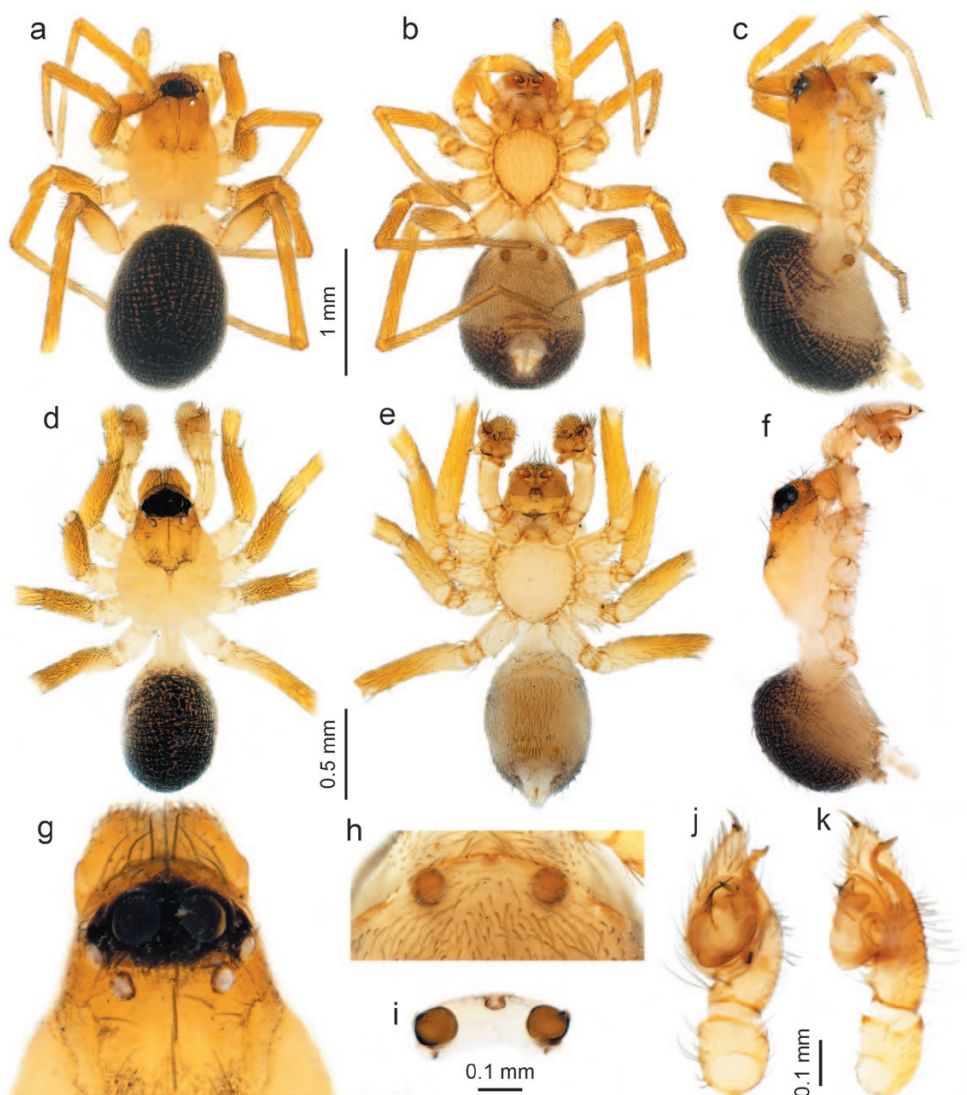


Fig. 7. – *Tropizodium peregrinum* Jocqué & Churchill. – a-c, ♀: a, dorsal view; b, ventral view; c, lateral view. – d-f, ♂: d, dorsal view; e, ventral view; f, lateral view. – g, Eyes, frontal view. – h-i, ♀: h, epigyne; i, vulva. – j-k, ♂: j, palp, ventral view; k, palp, retrolateral view.

MRAC_243322 to MRAC_243323); 1 ♂, Saint-Paul, Piton-Défaut (alt. 110 m), 29.VIII.2012 (MRAC_243321); 4 ♂, Saint-Pierre, Pierrefond (alt. 60 m), VIII.2014 (BDER00428_01, BDER00429_01*, BDER00430_0101), *Jacquot et al. leg.* (pitfall traps); 1 ♂, *idem*, 21.VIII.2013 (MRAC_243325); 2 ♂, 1 ♀, Saint-Pierre, chemin de l'Irat (alt. 160 m), 15.VIII.2014, IV.2015, (BDER00432_0101, BDER00433_0101), *B. Derepas leg.* (pitfall traps).

Distribution. – Reunion Island (new record) and Northern Territory (Australia).

DISCUSSION

Spider fauna on Reunion Island counts now 31 families. Among the seven species newly recorded in Reunion, five have been previously recorded from Seychelles. *Creugas gulosus* and *Oecobius marathaus* have a pantropical distribution. For *Orthobula impressa* (known from Oriental region), *Palicanus caudatus* and *Oedignatha scrobiculata* (known from Oriental-Australian region), Reunion is the southwestern-most locality. *Ero aphana* has one of the wider distributions, but isn't known from Seychelles. Lastly, *Tropizodium peregrinum* was only known from type locality in Darwin (Australia) and in Reunion. This species now shows an unusual distribution among spiders.

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